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Modern graphics cards analysis and spheres of use

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Анотація
У даній статті розглянуто інновації сучасних відеокарт, їх види та способи їх застосування у сучасному суспільстві.
Ключові слова: *відеокарта; архітектура; інновації; графіка; види відеокарт.*

Abstract
This article discusses innovations of modern video cards, their types and ways of using them in modern society.
Key words: video card; architecture; innovations; graphics; types of video cards.

Computer graphics is actively developing every year. As a result of the development of graphics, the market for graphics cards is constantly evolving too. Today, graphics cards are used to form images, and they have become one of the main components of a computer. For the beginning we have to see what the graphics card is?

A graphics card (GPU) – is an electronic device that is designed to increase the realism and quality of the image and then display it on the screen of a peripheral device (monitor).

Modern architectures of graphics cards provide higher performance in traditional rasterization and rays tracing tasks. All of this is possible due to the innovation of scientists and the general interest in this industry.

Innovative solutions [1] of modern architectures are:

- Fast GDDR6X graphics memory with data rates up to 1 TB / s;
- Use of cores: CUDA, RT and tensor cores, which accelerate the creation of motion scenes, allowing faster creation of a more accurate image, and at the same time provide twice more operations;
- Using more powerful buses for high-speed information transfer;
- Introduction of artificial intelligence and ensuring its rapid learning;
- Using new technologies that accelerate and increase the power of architecture;
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In the contemporary world, there are 3 ways to use a graphics card. Let`s consider each of these ways and explore something about their features and methods of use in the modern world.

The gaming graphics card

The gaming industry has [2] been instrumental in the evolution of GPU technology. Today's PC games are more realistic and complex than ever before, and the increasing performance of modern GPUs is both part of the reason why, and a response to gamers demanding better-looking and more complex games.

Next to the central processing unit (CPU), the graphics [2] processing unit (GPU) has the most impact on a gaming PC's performance.

Simply put, if you're building a PC to play games, then the GPU will be your most important purchase.

The gaming graphics [2] card is characterized by high performance, massiveness, a large amount of memory, the presence of several graphics cores and built-in interface technologies. It is used to increase the realism and quality of the game image.

The graphics card for work

Most modern CPUs have integrated graphics, [2] which are essentially GPUs that are built into the CPU itself or are otherwise closely interlinked with the CPU. These integrated graphics is characterized by lower-performance options, providing enough power to drive the operating system and run web browsers, email clients, productivity apps, and other routine software, but not enough for anything more than casual (or older) games.

If you aren't gaming or running [2] demanding professional applications that can use a GPU to speed things up, you might not need to invest as much money in your graphics card. If you're mainly running productivity apps, browsing the web, managing email, and performing other low-resource tasks, then picking out the integrated graphics card should be a higher priority.

The graphics capabilities embedded in your [2] system's CPU are probably sufficient, and you likely don't require a separate GPU.

The graphics card for mining

Graphics cards are [3] also popular with crypto-currency investors, who can use them for processing transactions and generating bitcoins, in a process known as mining.

Bitcoin – is an electronic currency, the concept of which was voiced in 2008 by Satoshi Nakamoto and introduced by him in 2009, based on a self-published document by Satoshi Nakamoto.

Many miners build rigs using several graphics cards at a time to produce a powerful machine dedicated to mining crypto-currency, rather than gaming.

For this to be economical, the rig must generate [3] more in bitcoins than the cost of the hardware and the electricity it uses to run.

They are characterized by high productivity, stability, highly efficient cooling system and low energy consumption.

Conclusion

The analysis has shown that the modern architecture of video cards provides high speed and realism in the formation of graphic images.

The main innovations of modern architectures of video cards are singled out, the main directions in using modern GPUs are given and characterized in the given thesis.

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